

14821530 Canada Inc. (DBA FractalEV)

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

MODEL:
FR-482C1DRNAJ, FR-802C1DRNAJ

REPORT NUMBER:
231200519SHA-003

ISSUE DATE:
March 26, 2024

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TEST REPORT

Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North)
Caohejing Development Zone
Shanghai 200233, China

Telephone: 86 21 6127 8200

www.intertek.com

Report no.: 231200519SHA-003

Applicant: 14821530 Canada Inc. (DBA FractalEV)
Suite 210 5-420 Erb St. W. Waterloo Ontario N2L6K6 Canada

Manufacturer: 14821530 Canada Inc. (DBA FractalEV)
Suite 210 5-420 Erb St. W. Waterloo Ontario N2L6K6 Canada

Factory: 14821530 Canada Inc. (DBA FractalEV)
Suite 210 5-420 Erb St. W. Waterloo Ontario N2L6K6 Canada

FCC ID: 2BEKZFR482C1DR

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:

Project Engineer
Sky Yang

REVIEWED BY:

Reviewer
Eric Li

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TEST REPORT**Revision History**

Report No.	Version	Description	Issued Date
231200519SHA-003	Rev. 01	Initial issue of report	March 26, 2024

TEST REPORT**1 GENERAL INFORMATION****1.1 Description of Equipment Under Test (EUT)**

Product name:	EV Charger
Type/Model:	FR-482C1DRNAJ, FR-802C1DRNAJ
Description of EUT:	The EUT is an electric vehicle AC charger.
Rating:	FR-482C1DRNAJ: 208/240VAC, 60Hz, 48A Max FR-802C1DRNAJ: 208/240VAC, 60Hz, 80A Max
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	-
Hardware Version:	-
Sample received date:	February 21, 2024
Date of test:	February 22, 2024~ March 8, 2024

1.2 Technical Specification

Frequency Range:	13.56 MHz ~ 13.56 MHz
Modulation:	ASK
Antenna:	PCB antenna

TEST REPORT**1.3 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Member No.: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

TEST REPORT**2 MPE Assessment****Test result:** Pass**2.1 MPE Assessment Limit****Mobile device exposure for standalone operations:**

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Note: Limit for 13.56MHz is 60.77 V/m

Mobile device exposure for simultaneous transmission operations: the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0

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2.2 Assessment Results

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

R = distance (cm)

As we can see from the test report 231200519SHA-002:

$$61.0 \text{ dBuV/m} @ 3 \text{ m}, @ 20 \text{ cm} = @ 3 \text{ m} + 40 \log(3/0.2) = 108.04 \text{ dBuV/m} = 0.252 \text{ V/m} < 60.77.$$

The power for WIFI module refers to certificate of FCC ID: 2AC7Z- ESPS3WROOM1

The power for LTE module refers to certificate of FCC ID: XMR202008EG91NAXD

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Frequency Range (MHz)	EIRP		Antenna Gain (dBi)	R (cm)	S (mW/cm ²)	Limits (mW/cm ²)
WIFI 2.4G	23.76	237.68	3.26	20	0.0473	1.0000
BLE	13.26	21.18	3.26	20	0.0042	1.0000
WCDMA Band II	29.50	891.25	5.5	20	0.1773	1.0000
WCDMA Band IV	29.50	891.25	5.5	20	0.1773	1.0000
WCDMA Band V	29.50	891.25	5.5	20	0.1773	0.5493
LTE Band 2	30.00	1000	5.5	20	0.1989	1.0000
LTE Band 4	30.00	1000	5.5	20	0.1989	1.0000
LTE Band 5	30.00	1000	5.5	20	0.1989	0.5493
LTE Band 12	30.00	1000	5.5	20	0.1989	0.4660
LTE Band 13	30.00	1000	5.5	20	0.1989	0.5180
LTE Band 25	30.50	1122.02	5.5	20	0.2232	1.0000
LTE Band 26(814-824)	30.50	1122.02	5.5	20	0.2232	0.5427
LTE Band 26(824-849)	30.50	1122.02	5.5	20	0.2232	0.5493

Note: 1 mW/cm² from 1.310 Table 1.

RFID, LTE and WIFI can transmit simultaneously, so the maximum rate of MPE is,
 $0.252/60.77 + 0.0473/1 + 0.1989/0.466 = 0.478 < 1.0$.

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Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.

To ensure compliance, operations at closer than this distance is not recommended.

*****END*****